Claims

What we claim is:

1.   A method for assessing skeletal growth of a subject, comprising measuring the level of NT-CNP in a biological sample from the subject, and comparing the level against the mean NT-CNP level from a control population, wherein a significant deviation in the measured level from the mean control level is indicative of abnormal skeletal growth.

2.   A method as claimed in claim 1, wherein the biological sample is plasma or whole blood.

3.   A method as claimed in claim 1, wherein subject is a pre-adult.

4.   A method as claimed in claim 1, wherein the subject is a pre-pubescent child or infant.

5.   A method as claimed in claim 3, wherein the subject is a neonate and the sample is a cord blood sample.

6.   A method as claimed in any one of claims 1 to 5, wherein the subject is undergoing a treatment regimen which may impact on skeletal growth in said subject.

7.   A method as claimed in any one of claims 1 to 5 wherein the subject is exposed to chemicals or other external factors which may impact on skeletal growth in said subject. .

8.   A method as claimed in claim 1, wherein the measuring step comprises detecting binding between NT-CNP and a binding agent that selectively binds NT-CNP.

9.   A method as claimed in claim 8, wherein the binding agent is an antibody or antibody fragment.

10.   A method as claimed in claim 9, wherein the binding agent is a monoclonal antibody or monoclonal antibody fragment.

11.   A method as claimed in claim 8, wherein the NT-CNP to which the binding agent selectively binds comprises an antigenic peptide selected from the group consisting of proCNP(1-103), proCNP(1-50), proCNP(1-81), and proCNP(51-81).

12.   A method as claimed in claim 11, wherein the NT-CNP comprises proCNP(1-50).

13.   A method as claimed in any one of claims 8 to 12, wherein binding of NT-CNP is measured using antibodies or antibody fragments that are immobilised to a solid phase.

14.   A method for predicting the skeletal growth potential of a subject comparing measuring the level of NT-CNP in a biological sample from said subject, and comprising the level against the mean NT-CNP level of a control population that has attained maximum skeletal growth and predicting from the NT-CNP level in the subject, skeletal growth potential of the subject.

15.   A method for predicting the skeletal age of a subject comprising measuring the level of NT-CNP in a biological sample from said subject and comparing the level against the mean NT-CNP level of a control population of known skeletal ages, and predicting from the NT-CNP level in the subject, the skeletal age of the subject.

16.   A method for diagnosing a skeletal disease or disorder in a subject comprising measuring the level of NT-CNP in a biological sample from said subject, and comparing the level against the mean NT-CNP level from a control population, wherein a significant deviation in the measured level from the mean control level is indicative of a skeletal disease or disorder.

17.   A method as claimed in any one of claims 14 to 16, wherein the biological sample is plasma or whole blood.

18.   A method as claimed in any one of claims 14 to 16, wherein subject is a pre-adult.

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19.   A method as claimed in any one of claims 14 to 16, wherein the subject is a pre-pubescent child or infant.

20.   A method as claimed in claim 18, wherein the subject is a neonate and the sample is a cord blood sample.

21.   A method as claimed in any one of claims 14 to 16, wherein the measuring step comprises detecting binding between NT-CNP and a binding agent that selectively binds NT-CNP.

22.   A method as claimed in claim 21, wherein the binding agent is an antibody or antibody fragment.

23.   A method as claimed in claim 22, wherein the binding agent is a monoclonal antibody or monoclonal antibody fragment.

24.   A method as claimed in claim 21, wherein the NT-CNP to which the binding agent selectively binds comprises an antigenic peptide selected from the group consisting of proCNP(1-103), proCNP(1-50), proCNP(1-81), and proCNP(51-81).

25.   A method as claimed in claim 24, wherein the NT-CNP comprises proCNP(1-50).

26.   A method as claimed in any one of claims 21 to 25, wherein binding of NT-CNP is measured using antibodies or antibody fragments that are immobilised to a solid phase.

27.   A method as claimed in claim 16, wherein where a significant deviation from the mean control level is found in the sample, the method comprises a further step of comparing the measured NT-CNP level with one or more mean NT-CNP levels from populations having known skeletal diseases or disorders to make a more accurate diagnosis of the specific disease or disorder.

28.   A method as claime din claim 16, wherein the skeletal disease or disorder is selected from the group comprising congenital disorders, delayed developmental disorders and advanced development syndromes.

29.   A method of monitoring skeletal growth in a subject comprising measuring the level of NT-CNP in a first biological sample from the subject and measuring the level of NT-CNP in a second biological sample, wherein the second biological sample is taken from the same subject as the first sample but at a later date, and comparing the levels of NT-CNP in said first and second samples, wherein a significant change in the level of NT-CNP in said second sample from the level of said first sample indicates a change in the rate of skeletal growth.

30.   A method as claimed in claim 29, wherein the subject is undergoing a treatment regimen which may impact on skeletal growth of said subject.

31.   A method as claimed in any one of claims 6 and 30 ,wherein the treatment regime involves the administration of glucocorticoids to the subject.

32.   A method as claimed in claim 31, wherein the subject is undergoing treatment for asthma or other chronic allergic states.

33.   A kit for measuring the level of NT-CNP in a biological sample comprising a binding agent that selectively binds to NT-CNP and which can be quantitatively measured upon binding to NT-CNP.

34.   A kit as claimed in claim 33, wherein the binding agent is selected from the group comprising an anti-NT-CNP antibody, an NT-CNP receptor, or functional fragments or combinations thereof.

35.   A kit as claimed in claim 34, wherein the binding agent is a monoclonal antibody or a fragment thereof.

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36.   A kit as claimed in claim 35, wherein the antibody is an antibody raised against an NT-CNP molecule selected from the group consisting of proCNP(1-103), proCNP(1-50), proCNP(1-81), and proCNP(51-81).

37.   A kit as claimed in any one of claims 33 to 36 which further comprises instructions for conducting an analysis selected from the group consisting of assessing or monitoring skeletal growth in a subject, predicting the skeletal growth potential of a subject, predicting the skeletal age in a subject, and diagnosing a skeletal disease or disorder in a subject.

38.   A NT-CNP binding agent that selectively binds NT-CNP for use in assessing or monitoring skeletal growth in a subject.

39.   A NT-CNP binding agent that selectively binds NT-CNP for use in predicting the skeletal growth potential of a subject, or for predicting the skeletal age in a subject.

40.   A NT-CNP binding agent that selectively binds NT-CNP for use in diagnosing a skeletal disease or disorder in a subject.

41.   A use of a NT-CNP binding agent in the manufacture of a medicament for assessing or monitoring skeletal growth in a subject.

42.   A use of a NT-CNP binding agent in the manufacture of a medicament for predicting skeletal growth potential or skeletal age in a subject.

43.   A use of a NT-CNP binding agent in the manufacture of a medicament for diagnosing a skeletal disease or disorder in a subject.